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the electronic bond between established local networks and the new competitors.

Electronic bonding involves creating interfaces for competitors to interconnect with incumbents' operations support systems (OSSs)—massive computer systems for functions like ordering, billing, and maintenance. At its best, electronic bonding relies on the most automated systems possible, eliminating human intervention in favor of such approaches as online access to repair status reports or electronic document interchange (EDI) for processing orders. After the last gavel sounds and the rules for competition finally are established, the electronic bond between incumbent and competitor will go a long way to determine—every minute of every day—how well competition will flourish.

Electronic bonding is critical for one simple reason: A competitor's quality of service depends on the quality of the interfaces it has to the incumbent telco's OSSs. Under the competitive framework now being established in the United States, competitors typically will resell an incumbent's network elements and services. That means each competitor must go through the incumbent to fill a customer's order or to process a repair job. Poor interfaces mean slow business processes, which translates to customers waiting longer for service from the new players than from their trusted old telephone company. A weak OSS link also can introduce chronic errors in applications like billing—not exactly the kind of customer service a new operator wants to deliver. "It would be disastrous to go into a market without a quality process to deal with customers," says Mike Pfau, division manager in the local services division with AT&T. "Your brand will suffer for years afterward."

OSS interfaces have become a flashpoint for the acrimony that is building between incumbents and competitors. It doesn't get any more contentious than this: a telephone company suing a long-distance operator for defamation. In December, an AT&T executive publicly said at an investors'

conference that implementing and testing Ameritech Corp.'s interfaces had proved complicated. The Bell company slapped a lawsuit on AT&T, saying the AT&T executive's comments falsely implied "that Ameritech's electronic interfaces were so ineffective that AT&T's orders could not be processed or completed." In the suit, Ameritech claims that "AT&T's suggestion that its orders could not be completed because of Ameritech errors is...untrue—and AT&T knew it was untrue." To defend itself further, Ameritech last month publicly demonstrated its operational interfaces with a video feed to Washington, D.C.

Why would Ameritech go to such lengths? It could be at least in part because last month the Bell company asked the Federal Communications Commission for permission to enter the long-distance market. The FCC will grant permission for Ameritech or any other Bell company to enter the long-distance market only when that company has met the required conditions—including establishing OSS interfaces—for local competition. A weak link for competitors, as it turns out, could also prove a weak link in a Bell's future business plan. Undaunted by the defamation suit, AT&T raised loud objections to Ameritech's FCC request, saying there is no real local competition in the Michigan market that Ameritech has targeted for long-distance service.

Disputes over OSS interfaces aren't unique to Ameritech and AT&T. In recent months, MCI Communications Corp. also challenged the quality of the interfaces provided by Pacific Bell and Nynex Corp. Neither side of this issue is without guile, though—some observers point to these claims as an attempt to stall the entry of the Bell companies into the long-distance market. Nynex claims that MCI attempted to use its interface only once—and without training—before filing its challenge.

## The Dirty Dozen

BLOCKING AND TACKLING EFFORTS like these are almost to be expected when monopoly markets are open to competition (see "The Killer Ds"). But the disputes under-

# THE KILLER Ds

**C**ompetition—or the lack of it—got you down? Providers looking to crack the U.S. local market could learn a few lessons by looking east—specifically, to the United Kingdom, where local competition has been less than an overnight success. When U.K. markets were opened to local competition back in 1986, the incumbent monopoly—BT—didn't exactly greet its new rivals with open arms. Mae Sullivan, an analyst at TelCom Consultants Ltd. (London), says BT's treatment of its first competitor, Mercury

Communications Ltd. (London), could be characterized by what she calls the five Ds: denial, delay, discrimination, denigration, and dumping. Under the five Ds, an incumbent first denies that competition is really coming. Then when competition hits, the incumbent goes into delay mode—a phase can take about two years to run its course, Sullivan notes. After that, new competitors have to deal with discrimination—in which the incumbent treats them as second-class citizens. Once competitive services are up and running, the incumbent will start denigrating those offerings, as BT did

with telephone services. Finally, with television, Sullivan points to the case of BT, which denied that it had any services because the cable companies lacked proper infrastructure for services. Finally, BT went into delay stage—in which the incumbent saddles its new competitors with customers it doesn't want to serve. Finally, BT dumped its new competitors with nasty can dumping goods. Finally, BT dumped its new competitors with nasty can dumping goods. Finally, BT dumped its new competitors with nasty can dumping goods.

score a significant problem for competitors—the diversity of incompatible interfaces offered by incumbents throughout the country (see “Bond Futures,” page 60). The FCC’s regulations for interconnection specify only that the incumbent must give competitors the same type of access to OSSs that the incumbent uses itself. That might protect new competitors from anticompetitive abuses, but it leaves them with the problem that no two incumbents are creating their interfaces alike.

For competitors like AT&T, which wants to offer local service in all 50 states, that means creating gateways or reconfiguring interfaces to its own OSSs for ordering, provisioning, maintenance, and billing for each regional Bell territory or each independent telephone company’s market. “Ameritech has nine different interfaces that have to be built for exchanging basic information,” Pfau says. Ameritech says that the nine systems require different interfaces, but EDI can be used for three of them. Pfau notes that AT&T also deals with nine other telcos, most of which have created different interfaces for different functions.

Incumbents respond by pointing to a lack of standards and guidance in this arena. Although several committees within the Alliance for Telecommunications Industry Solutions are now addressing these issues, the standards aren’t

the clarification, the FCC added that it “[did] not anticipate initiating enforcement action against incumbent LECs that are making good-faith efforts to provide such access within a reasonable period of time.” But the incumbents were hard-pressed to even get this far. In Pfau’s view, the incumbent telcos became more concerned about just meeting the FCC’s deadline than about being able to move customer information quickly and easily between networks.

The jury is still out regarding the quality of the work that local service providers have done in electronic bonding. “We’ve started testing Ameritech’s interfaces, but the testing is not complete,” says Pfau. The FCC appears to be relying on a complaints process to determine which telcos’ interfaces don’t meet its requirements.

The variety of interfaces scattered across the country leaves some analysts concerned about service quality for consumers. There could be different levels of service around the country—“something we haven’t seen since 1913,” says Joe Kraemer, vice president of the communications and electronics practice at consultancy A.T. Kearney (Chicago). Most incumbents say they will move to industry standards once they’re completed. But Pfau thinks testing of interfaces—first the interim approaches and then the standard ones—will continue for the next two years.

Standards pose an additional problem for competitors: Anyone who wants to enter the local market now must spend money supporting interfaces that could change in a year. While AT&T

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might grumble about these changes, at least it can afford them. The problem becomes more serious for smaller competitors with shallower pockets. Resellers contend that in the early days of long-distance resale, AT&T stymied the competition by changing the interfaces required to operate.

Those companies that couldn’t afford to change interfaces simply went out of business, according to one reseller. The prospect of having to shell out tens of millions of dollars for OSSs is leading some would-be competitors to consider outsourcing some key operations (see “Hired Help for OSSs”).

## Unbundled, or Unraveled?

FOR INCUMBENT TELCOS, unbundling existing OSSs requires a great deal of work and money. It’s a task that’s further complicated for providers in markets that are likely to attract a gaggle of new competitors. For instance, 71 would-be entrants have requested permission from the California Public Utilities Commission to offer local service in that state. At press time, PacBell had signed interconnection agreements with 14 of those companies.

Most OSSs now used by incumbent telcos were designed as single-user systems. That means the system software typically accommodates one local carrier in its file

all complete. An industry standard does exist for trouble administration/ticketing (ANSI T1.227/228) and the Ordering and Billing Forum (OBF) has published EDI-based guidelines for local service requests. But OBF is still working on preordering, and for some functions, such as the exchange of billing information, no standards are in place.

These shortcomings, combined with an FCC order last August requiring incumbents to give competitors access to individual OSS functions like ordering or billing by January 1997, left little time for a unified approach. In fact, Sprint Corp. and the Local Exchange Carrier Coalition—an ad hoc group of about 300 local exchange carriers—requested that the FCC extend the OSS unbundling deadline to January 1998. In December, the FCC stated that it would not postpone the date, but the agency clarified its position, saying, “By January 1, 1997, an incumbent local exchange carrier must, at a minimum, establish and make known to requesting carriers the interface design specifications that the incumbent LEC will use to provide access to OSS functions.” In

structure and has one central management point that's hierarchical, says Pierrette Chabot, an independent telecommunications consultant who does work for New Paradigm Resources Group Inc. (Chicago). Incumbents face two expensive choices: Either unbundle a system that wasn't designed for competition, or start over with new OSSs. Most telcos say they can't afford to start over, since they've already invested an extraordinary amount of money in their current OSSs.

To protect their sizable investments in their OSSs, most telcos have opted to undertake the tedious task of unbundling existing systems. Many have built gateways, which are servers that can field requests from multiple competitors, translate them into a format or language the legacy back-office systems (usually mainframes) will understand, and send requests on to the appropriate system. Sitting in front of its legacy systems, an OSS gateway put in place by Southern New England Telecommunications Corp. (SNET, New Haven, Conn.) connects to the public network via an X.25 data network, says Ray Keating, a program leader for wholesale mechanized services delivery at SNET. "Competitors can submit EDI-based local service requests across the X.25 network to the gateway, which will determine where within the legacy system that request must be transmitted," he says. SNET spent \$2 million on its mechanized services access platform, he says.

That may not sound like a high price to enable electronic bonding. But add in the additional staffers needed in service centers and the other expenses associated with interconnection and resale, and those amounts skyrocket. Nynex's expenditures for 1996—including its direct customer access system, staffing up service centers, and all costs associated with interconnection and resale—totaled well over \$40 million and could even be as high as \$60 million, says Pat Garzillo, managing director of local carrier markets at Nynex. That doesn't take into account what Nynex will spend in 1997, he says.

To comply with the FCC's deadline for OSS interconnection, GTE spent about \$10 million, including the cost of hardware, setting up networks, and ramping up staffing in its customer service center, says Kevin Snyder, process team leader for service fulfillment at GTE. "The cost wasn't particularly high, but it was a major effort," he says. PacBell spent well over \$70 million in 1996 preparing for competition, says Lydia McCloskey, executive director of local competition planning for the Bell company. That total includes work for universal service, 30 teams doing development work for interconnection, and the beginning work for long-term number portability, she says.

Some observers say that this kind of spending will barely raise a blip on Bell company financial radar. "It's more like a rounding error," says Walter G. Bolter, director of telecommunications at Bethesda Research Institute Inc. (St. Augustine, Fla.). "I wouldn't say that \$70 million is insignificant," says Robert Blau, vice president for executive and regulatory affairs at BellSouth Corp. After the Bell System's divestiture in 1984, the total cost of providing equal access to carrier networks reached from \$2 billion to \$4 billion, he notes. "This will be more expensive than that because of the general increase in OSS costs," Blau contends. "There are so many more unbundled elements than with equal access."

That's not to say that the incumbents won't get some kind of return on their investment. In the long-distance mar-

ket, resellers are some of the major long-distance carriers' largest customers, and the same is likely to occur in the local services market. But for many people who work for the local telephone company, the investment might seem counterintuitive—a sure bet on lower market share.

## Out of the Gates

OF THE BELL COMPANIES, Nynex is among the furthest along on the learning curve to the brave new world of local competition. The state of New York introduced competition earlier than other states, requiring Nynex to begin provisioning unbundled local loops and number portability in January 1995 and to start offering resale services by October 1996. With the basic infrastructure in place and a concept of what access would be, Nynex completed the gateway for resale last June and began to test it. Even using an outside firm, "it took a good solid year to get all the parameters in place," says Garzillo.

Incumbents that waited until the FCC interconnection ruling in August 1996 to begin unbundling services to comply with the agency's January 1997 deadline faced a significant challenge. "Six months is an aggressive time frame to develop systems and capabilities if you want to do it right," says Garzillo. Even PacBell, which had already outlined a plan for unbundling and interfaces by last August, talks about the stress this short deadline places on employees. "Our folks haven't had a holiday for a really long time," McCloskey says.

Some industry experts say that regardless of the interfaces deployed, the very nature of an incumbent's legacy OSSs won't provide competitors with a fair shake. For instance, for some functions like preordering, some incumbents plan to have customer service reps enter the information manually. According to the FCC's rulings, this wouldn't be considered discriminatory if this is how the incumbent processes preordering requests for itself. "This is a big issue of discrimination in a downsized LEC environment," says consultant Chabot. "If incumbents don't have the people, competitors will be in trouble."

GTE has already begun spending money to staff up its National Open Market Center in Durham, N.C., to handle the volume of competitor requests. The center now employs about 50 staffers, but GTE expects to add another 100 people this year, says Snyder. Chabot contends that in the long run it would be infinitely cheaper to get new OSSs than to continue using legacy systems and modify them, but she concedes that the states aren't likely to require incumbents to scrap existing OSSs.

The higher cost of unbundling legacy OSSs undoubtedly will be passed along to consumers, Chabot says. Ultimately, however, competitors could sidestep incumbent systems altogether by turning to other facilities-based providers, such as MFS Communications Co. Inc. (Omaha, Neb.), Brooks Fiber Properties (St. Louis), and Teleport Communications Group Inc. (TCG, New York). These operators typically have newer OSSs in place. In fact, TCG says it will be a carrier's carrier and won't compete in the local exchange for users. Says Chabot, "The reseller is TCG's business, so at least it won't discriminate." ■

RACHAEL KING is an associate editor at tele.com. Her Internet address is rking@teledurcom.com

